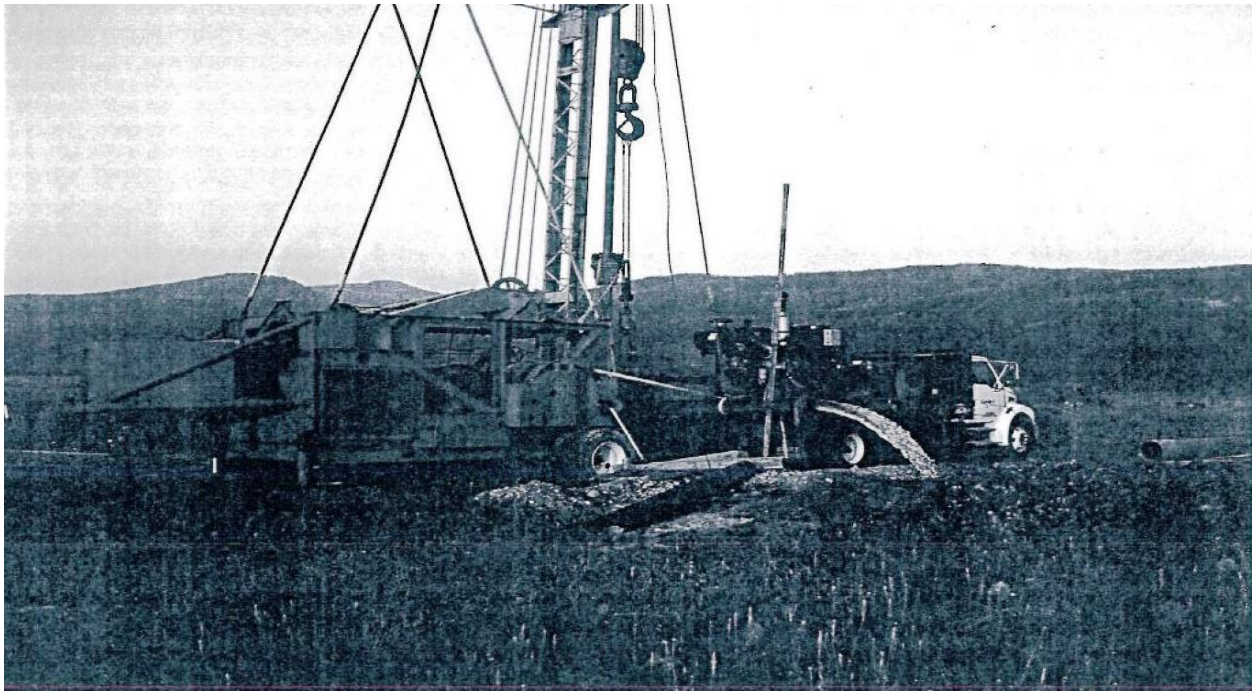
Drinking Water State Revolving Fund Green Project Reserve

- Preliminary -



Teton Reserve HOA Drinking Water Project

SRF Loan #DW 1701 (pop. 820)

$980,000

Preliminary Green Project Reserve Justification

Business Case GPR Documentation

INSTALLS NEW WELL PUMPS WITH VFDS (Energy Efficiency). Business Case GPR per 3.5-1: *Energy efficient …new pumping systems… including variable frequency drives* ($27,000).

State of Idaho SRF Loan Program
November 2016

NEW WELL PUMP VFD[1]

Summary

- Two new wells (Well #2 and #3) will be installed and equipped with a pumps with a variable frequency drives (VFDs).
- Loan amount = $980,000
- Energy savings (green) portion of loan = X% ($xxxxxxx)
- Simple pay-back period = X years (VFD)

Background

- At full buildout, the HOA water system will provide water to 384 residential connections and the golf course service buildings.
- Well #1 currently supplies all water to the residential connections. Construction of the proposed Wells #2 and #3 will enable development to proceed for lots already purchased by individual owners.
- Construction of the water system will occur in phases. The 350 gpm pump for Well #2 and the 1000 gpm pump for Well #3 are projected to provide sufficient domestic and fire water for approximately 190 connections. As growth and demand increase, a larger well pump will replace the 350 gpm pump.

Calculated Cost Effectiveness of Improvements[2]

VFD Analysis:

Well #2

- WITHOUT A VFD: New 50-HP pumps without VFDs; Annual MWH utilized for this new system = XXX; energy cost approximately = $X.
- WITH A VFD: New 50-HP pump with a VFD; Annual MWH utilized for this new system is = XX; energy cost approximately = $X.
- Therefore, using a VFD for the new pumps provides a decrease in energy consumption of XX MWH for a savings = $X annually. At a typical VFD cost of $X the pay-back period = **x years**.

Well #3

- WITHOUT A VFD: New 75-HP pumps without VFDs; Annual MWH utilized for this new system = XXX; energy cost approximately = $X.
- WITH A VFD: New 50-HP pump with a VFD; Annual MWH utilized for this new system is = XX; energy cost approximately = $X.
- Therefore, using a VFD for the new pumps provides a decrease in energy consumption of XX MWH for a savings = $X annually. At a typical VFD cost of $X the pay-back period = **x years**.

Conclusion

- **GRP Costs Identified** : VFD = $12,000 + 15,000 = $27,000

[1] Analysis is Preliminary – to be updated at the time of design approval.
[2] WEG Electric Motor Payback Tool, energy cost @ $0.10/kWh.

- **GPR Justification**: The VFD Business Case GPR-eligible (Energy Efficiency) per Section 3.5-1: *Energy efficient retrofits, upgrades, or new pumping systems and treatment processes (including variable frequency drives (VFDs).*